

NC DIT Technology Strategy Board

Friday, December 10, 2021
9:00am—12:00pm



Agenda



Call to Order

Opening Remarks

Committee Reports

- Digital Transformation Committee
- Cybersecurity/Privacy Committee
 - *Cyber Education Pathways*
 - *Whole of State Approach*

Broadband Update

Other Business

Adjournment

Opening Remarks

Secretary Jim Weaver, Board Chair



Committee Reports

Digital Transformation



Digital Transformation Committee

Tracy Futhey, Chair
Jo Abernathy, Keith Briggs
Keith Collins, Anne Hungate, Teena Piccione



Progress Updates

- Debriefed with CIO on further areas of work
 - Encouraged DIT to continue to provide additional work opportunities for DT
 - 3 Prospective Work Areas
 - Identity Management & Personas
 - **DT Roadmap Roadshow (selected)**
 - Keith Briggs will be point
 - Rural Broadband
- Upcoming Meetings
 - Dec 16th (Optional/Roadshow Strategy & Citizen Portal updates)
 - Jan 20th (Optional/Roadshow Finalization & Digital Identity Update)
 - Feb 17th (Formal/Check In & Plan for March ITSB Mtg)

Committee Reports

Cybersecurity/Privacy



- **Overall update: *Jeff Tarte***
 - *Cyber Education Pathways – Keith Werner and Rob Main*
 - *Whole of State Approach – Randy Cress and Robbie Felicio*

Cybersecurity Education Pathways – DRAFT Framework

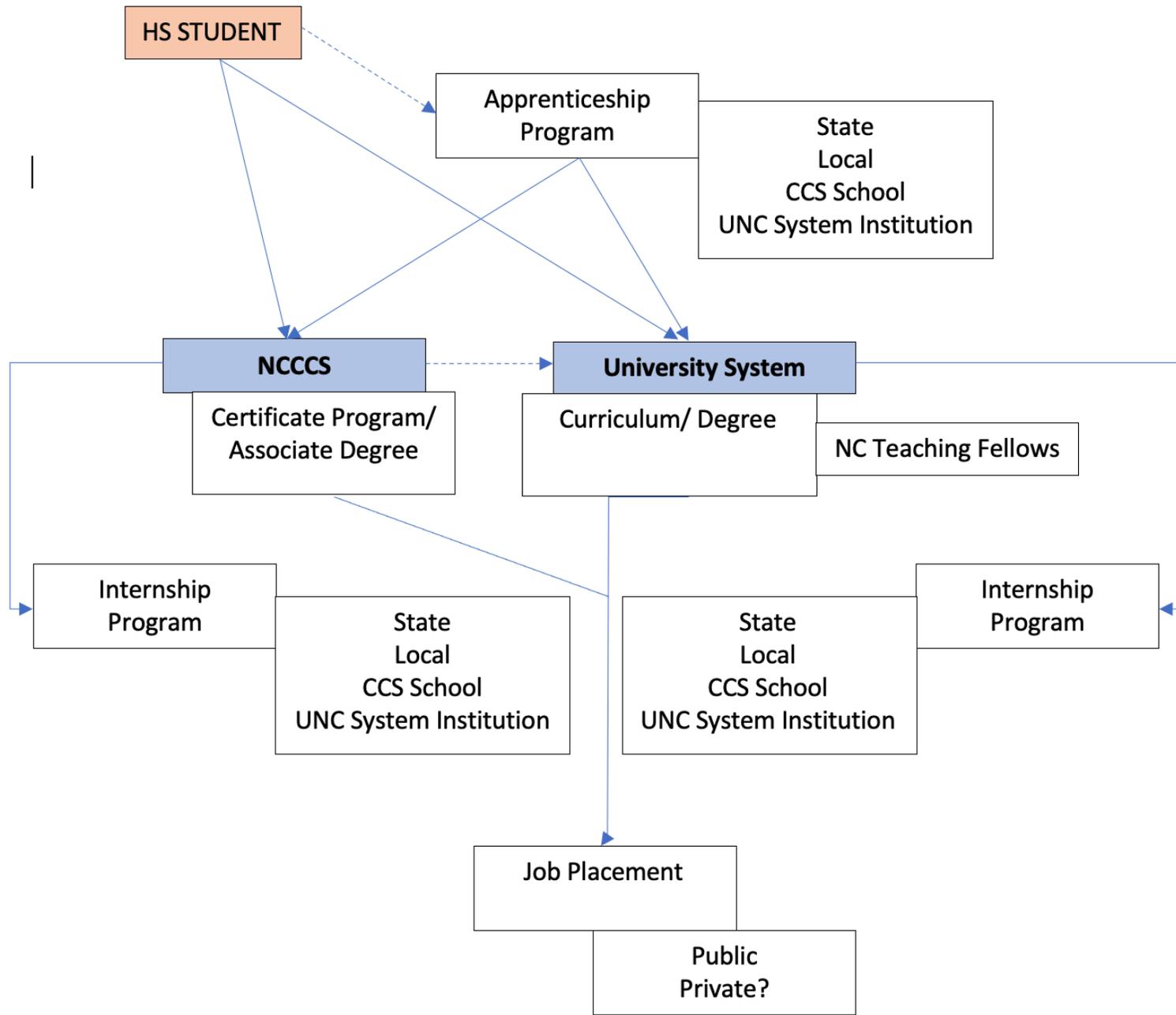
MISSION: to identify, educate, develop, train, employ, and retain aspiring cybersecurity practitioners for apprenticeship or internship programs for local government, state government, NCCCS, and university system.

GOAL: Develop a comprehensive program to create a sustainable cybersecurity human capital pipeline.

PROBLEM STATEMENT: Recruitment and retention of cybersecurity professionals for public sector is challenging with competition and demand for human resources extremely high. Resource gaps persist and continue to grow, with 17,660 open cyber related positions open in NC (source: Cyber Seek). Management of evolving cybersecurity risk is essential to the security of the state.

PROPOSAL: Develop a multi-pronged pathway to increase the number and quality of people pursuing public sector cybersecurity work in North Carolina

- Work with the Office of State Human Resources to develop pathway
 - Develop Apprenticeship, Internship, and Mentoring programs
 - Create Cyber Fellows program (model after Teaching Fellows)
- Develop curriculum and inventory existing certificate programs
- Align with existing programs (e.g. Carolina Cyber Center at Montreat College)
- Clearly articulate inventory of jobs
- Target recruitment to:
 - Transitioning military
 - Community College Students
 - Middle and High School Students
 - University Students
- Identify job placements in state, local, and education system positions
- Identify private sector partnerships
- Seek funding to support program



State of Local Government Cybersecurity (NC)

Broad demographic

100 Counties

552 Municipalities

Varying levels of IT centralization
across internal departments

- Elected Officials reporting structure
- Staff resource allocations
- Funding levels from tax revenue, state and federal

Cybersecurity Maturity Varies

Full IT staff with
dedicated CISO role

Limited IT staff

One-man shops

Outsourced IT
operations

Citizen services remain consistent (Public Safety, Water/Sewer,
Social and Health Services, Tax and Vital Records)

Understanding the threat landscape?

National Cyber Security Review

National Guard Assessments

911 Board PSAP Cyber Assessment

CJIS Auditing

National Cybersecurity Review (NCSR)

Self Assessment Process

- Subjective review - good process, limited understanding
- Possible area of guidance from State/Peer resources

Tied to NC Emergency Management Grants as a requirement

- Potential for other funding and/or grants tied to County response

National Guard Assessments (NCNG)

Structured Process

- Policy Review
- Procedures
- System and Network Baseline

Free to Counties

- Time commitment from staff
- Actionable final report

Assessment Overload? (Perspective)



Many new outside reviews of what can be improved



Impact from significant cyber events (own and neighbors)
prompt budget allocations - what can we do to fix? \$\$

What is the journey for better cyber posture?

- ▶ State Resources
 - ▶ Managed Intrusion Detection / Prevention and 24x7 monitoring (SecureWorks iSensor)
 - ▶ Assessments (Optional and Mandatory)
 - ▶ Incident Response support
 - ▶ Legislative reporting requirements

IP Address Attribution Needed for Local Government

- ▶ Difficult to support when critical CVEs are announced
- ▶ BitSight
- ▶ Shodan.io
- ▶ Tenable Nessus Scanning

- ▶ Locals may not be aware of all public IP exposure
 - ▶ Turnover
 - ▶ Multiple departments
 - ▶ Vendor equipment



- ▶ We have the pieces to the puzzle
- ▶ Trying to identify what the finished solution is (Framework alignment)
- ▶ Need support with strategies to get it completed before an event



WHOLE OF STATE

Mr. Randy Cress \ LTC Felicio

The State of North Carolina takes a whole of state approach that continuously works with Federal, State, Local, Tribal and Territorial entities in cyber security preparedness as well as being able to respond immediately to a cyber-attack.

Quick Reaction Support (Cyber QRF) > Cyber 911

Security Assessment Support \ Penetration Testing > Prevention \ Validate

Continuous Monitoring > Actively monitoring threats

Training and Outreach > Education and rehearsals

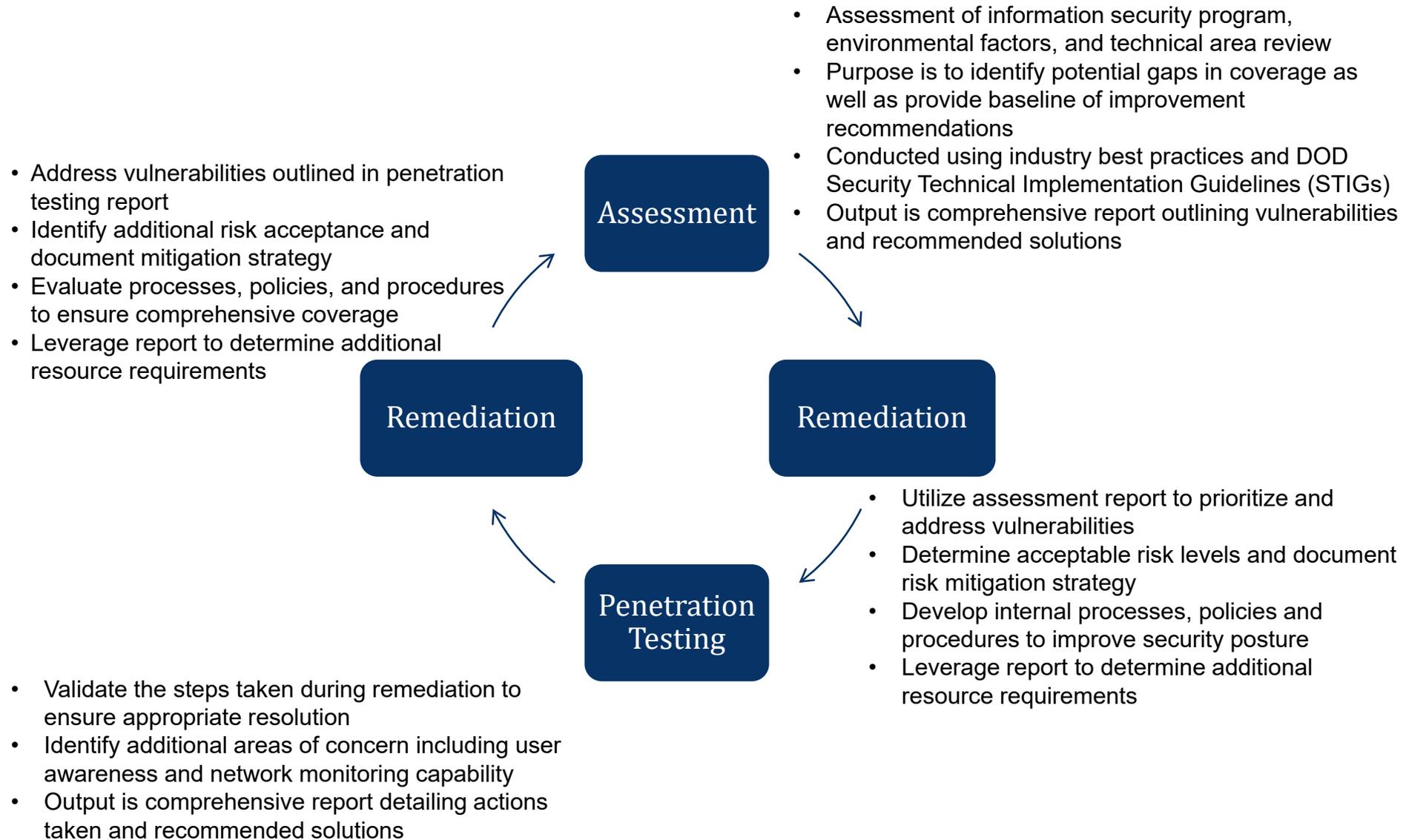
Forensics Support > How did it happen & preventing it from happening again

Surge Capability Support > Respond to large-scale attack

- **Quick Reaction Support (Cyber QRF):** The QRF has trained Incident Responders who can lead agencies into initial triage and through the completed process
 - Scoping call in minutes
 - On scene of the cyber attack anywhere in the state within hours
 - Contain the incident
 - Provide technical expertise to restore services as quickly as possible.
 - Past 12 months completed more than 20 Incident Responses

- **Security Assessment/Penetration Testing Support:** The Assessment Team provides cybersecurity hygiene audits/ assessments on networks and infrastructure.
 - Work hand-in-hand with each agency
 - Provide a comprehensive evaluation on their technology and environment,
 - Utilize industry best practice solutions to identify vulnerabilities, gaps in security policy, along with detailed recommendations for improvement.
 - Past 12 months completed more than 50 assessments across state

Strategy - Cyber Hygiene Cycle



- **Continuous Monitoring:** The Team provides monitoring for more than 150 agencies including state partners, county governments, and community colleges.
 - Continuous oversight and early warning notifications
 - Alert agencies to potential changes in their security posture in real time.
 - Technical expertise to resolve the issue as soon as its identified
 - Reducing downtime and spread of attack vectors.
 - Ability to look across numerous platforms to research threats
 - Notify agencies targeted by malicious actors.

- **Training and Outreach:** The Team conducts in person and virtual regular training and table-top exercises with state partners across a variety of cyber security related matters.
 - Example subjects: Cyber Hygiene Best practices, election security, web security, continuity of operations planning, incident response plan development, and vulnerability management.
 - Ransomware tabletop exercises and full scale exercises open to state partners that allowed them to see how an incident develops from start to finish, and the steps to take to contain.

- **Forensics Support:** Identify the attack vectors and root cause of the incident, as well as indicators of compromise to help prevent the attack from reoccurring.
 - Threat hunting and reach back forensic analysis
 - Utilize processes approved by LE including Secret Service, FBI, and CISA
 - Shared between agencies that will help mitigate future attacks.

- **Surge Capability Support:** This surge capability allows for specialized skillsets onto the team to meet whatever the mission requires.
 - For example, if a threat hunter is required, they can utilize M-Day guardsmen with that skillset to track the attack vector.
 - When an incident requires additional expertise in technologies across multiple counties or municipalities, mutual aid is provided by other IT professionals across the NCLGISA Strike Team.
 - Allows the team to run simultaneous missions

Cyber QRF – 911 \ Surge Capabilities

Cyber Incident Response Overview

- 8 Incident Responses in 2019
 - 2 – County/County Sheriff's Office
 - 2 – City
 - 2 – State Agency
 - 1 – Community College
 - 1 – K-12 School System
- 23 Incident Responses in 2020, numerous Events
 - 8 – County/Tribal (1 associated with SolarWinds hack)
 - 5 – City
 - 1 – State Agency (associated with SolarWinds hack)
 - 3 – Community College/University
 - 6 – K-12 School System
- 6 Incident Responses in 2021 to date, >100 Events
 - 2- Local Government
 - 1- SCADA/ICS
 - 1- County Rescue Squad
 - 1- Community College/University
 - 116 exposed organizations to MS ProxyLogon hack

The way forward

Continue to build upon success of the N.C. Joint Cybersecurity Task Force in proactive and responsive activities with local governments, LEAs and North Carolina community colleges.

(FORMALIZE MISSION and CHARTER)

Expand scope of continuous monitoring for state and local governments.

(Outreach & Training)

Establish a statewide program for monitoring of threats and optimize cyber intelligence sharing.

(FORMALIZE SOP for sharing JCTF \ Fusion Center)

Broadband Update

**Nate Denny, Deputy Secretary for
Broadband and Digital Equity**



BROADBAND UPDATE

IT STRATEGY BOARD MEETING
DEC. 10, 2021

NATE DENNY

DEPUTY SECRETARY, DIVISION OF BROADBAND AND DIGITAL
EQUITY



Agenda

1. Introductions
2. Goals for building digital equity
3. State budget funding
4. Infrastructure Investment & Jobs Act (IIJA) funding
5. Broadband strategic plan
6. Division organization
7. Priorities

Approximately 1.1 million North Carolina households lack access to high-speed internet in their homes² and cannot afford it. Many residents also lack the skills to effectively use it. We can achieve digital equity in North Carolina by addressing the following factors:



Infrastructure

At least 266,000 North Carolina households, likely much higher, currently do not have access to high-speed internet of 100/10+ due to lack of infrastructure.³



Affordability

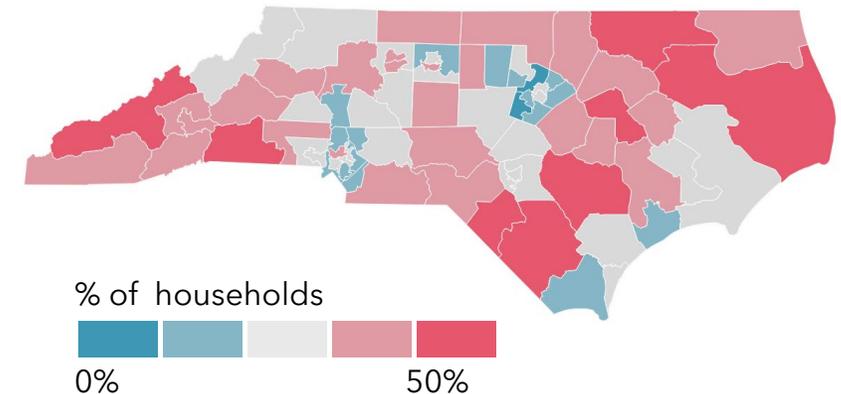
Approximately 1.3 million households would have to pay more than 2% of their annual income to afford a broadband cost of \$60/month.⁴



Digital Literacy and Enablement

An estimated 430,000 households are without a home laptop or desktop computer. Of those, approximately 180,000 do not have a smartphone.⁵ As many as 1.2 million adults may lack the digital literacy required to begin taking advantage of digital services.⁶

Percent of Households Without a High-Speed Internet Subscription (2019)⁷



1. Data on this slide is based on a 2021 study by McKinsey & Company. | 2. U.S. Census Bureau, 2019 American Community Survey (ACS) Microdata | 3. FCC Form 477, FCC 2019 block demographic estimates | 4. U.S. Census Bureau, 2019 American Community Survey (ACS) Microdata | 5. U.S. Census Bureau, 2019 American Community Survey (ACS) Microdata; 2021 Census Pulse Survey | 6. National Center for Education Statistics | 7. U.S. Census Bureau, 2019 American Community Survey (ASC) Microdata, for respondents who don't have an internet subscription or that only have cellular data or only have dial-up, satellite or other.

Key Success Metrics



Households with broadband internet access

N.C. Today

N.C. 2025

"95.5%"

98%



Households with broadband internet subscriptions

73%

80%



Households with children with broadband internet subscriptions

81%

100%



Adoption rates across racial subgroups

- Native American
- Black
- Latinx
- White

57%

80%

64%

80%

68%

80%

76%

80%

Governor Cooper's plan invests about \$1 billion of American Rescue Plan funds (and \$30 million of state funds) in the following areas to achieve digital equity in North Carolina. We will also leverage significant private sector investment.



Infrastructure

\$971M

Ensure availability of internet service at speeds of at least 100/20 Mbps for more than 98% of North Carolina households.

\$380M

- GREAT Grant

\$400M

- Completing Access to Broadband (CAB)

\$90M

- Stop Gap Solutions

\$100M

- Broadband Make Ready Accelerator (Pole Replacement Fund)

\$1M

- Broadband Mapping



Awareness and Digital Literacy

\$50M

Improve awareness and enable North Carolinians to realize the benefits of high-speed internet through digital literacy and upskilling aimed at accessing the digital economy.



Administrative

\$15M

Supplement existing state administrative capacity to support high-speed internet efforts.

Additional federal funding

Infrastructure Investment & Jobs Act (IIJA)

Program	Funding
FCC Affordable Connectivity Program <ul style="list-style-type: none">• Transitions Emergency Broadband Benefit Program• Reduces subsidy from \$50 to \$30 per month• Transitions this month	\$14.2 billion
Broadband Equity, Access, and Deployment (BEAD) Program <ul style="list-style-type: none">• High-cost areas (\$4.245B), Formula grants (\$37.356B)• Initial minimum allocation of \$100M per state or territory• Must include affordability component; prohibits exclusion of municipal networks	\$42.45 billion
Enabling Middle Mile Broadband Infrastructure Program	\$1 billion
Tribal Broadband Connectivity Program	\$2 billion
State Digital Equity Planning Grant Program	\$60 million
State Digital Equity Capacity Grant Program	\$1.44 billion
Digital Equity Competitive Grant Program	\$1.25 billion



Vision

A connected North Carolina where all residents can access, afford, and effectively use technologies necessary to participate and thrive in a digital society.

Mission

Provide resources to our partners in the private, not-for-profit, and public sectors to efficiently and effectively expand broadband and increase digital equity and literacy.

Guiding Principles

Equity • Collaboration • Innovation • Transparency • Accountability • Fiscal responsibility

	Build a sustainable team to deliver digital equity to North Carolina 	Enable more North Carolinians to afford high-speed internet 	Increase digital literacy among all North Carolinians 	Expand broadband access across the state 	Leverage data to identify and understand community needs 
Goals	<ul style="list-style-type: none"> Exercise good stewardship of public resources. Collaborate with partners to establish guidance and policy to improve digital equity for all North Carolinians. Provide technical expertise to communities, residents, and other stakeholders. Build capacity to efficiently and effectively deliver investments in broadband infrastructure and digital literacy. Maintain transparency and visibility into mission progress. Advocate on behalf of North Carolinians with internet providers and other stakeholders. Maintain focus on end-user needs. 	<ul style="list-style-type: none"> Raise the percentage of North Carolina households with high-speed internet subscriptions from 73% to 80%. Raise the percentage of North Carolina households with children with high-speed internet subscriptions from 81 to 100%. Increase adoption rates to 80 percent across minority subgroups. Advocate for additional federal investment in improved high-speed internet affordability programs. Build affordability into infrastructure projects and secure equity through project delivery. 	<ul style="list-style-type: none"> Lead digital inclusion activities across the state. Build public-private partnership to deliver computers to 96,000 low-income North Carolina households and break-fix services for 275,000 additional devices. Open innovative connectivity hubs in unserved communities across North Carolina. (pilot 5). Develop and implement digital training and tools that will connect residents to the digital economy. Provide digital literacy training that incorporates cybersecurity and privacy principles. 	<ul style="list-style-type: none"> Ensure 98 percent of North Carolina households have access to 100:20 Mbps or better service. Facilitate the deployment of last-mile broadband infrastructure through the GREAT grant program. Partner with counties to competitively-bid broadband infrastructure projects. Utilize stop-gap funding to address additional unserved areas and support utility pole replacement to expedite broadband deployment. 	<ul style="list-style-type: none"> Develop more comprehensive location-based maps of infrastructure availability, adoption, and pricing. Map digital equity across demographic groups. Build strong partnerships with internet provider community to access better data. Develop processes for communities and other stakeholders to share broadband planning data. Use data to make strategic, proactive investments in communities that are disconnected.

Division of Broadband and Digital Equity



Priorities

1. Address capacity needs (hiring, partners for governance, risk management, project and grant management)
2. Issue mapping RFP
3. Launch GREAT and CAB as soon as possible
4. Drive Affordable Connectivity Program enrollment, mitigate harm from cuts
5. Build device partnerships and digital equity grant programs
6. Plan for Infrastructure Investment & Jobs Act funds, position the state and stakeholders to be competitive

**Next Meeting:
March 18, 2021**

2022 Meeting Dates

- **March 18**
- **June 17**
- **September 16**
- **December 16**

Adjournment

**Thank you for your time this morning—
have an excellent holiday season!**

